

Abstract

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At least one of the interior wall of a reactor and a susceptor installed in the reactor is coated with an  $\text{Al}_a\text{Ga}_b\text{In}_c\text{N}$  ( $a+b+c=1$ ,  $a>0$ ) film, which is heated to about  $1000^\circ\text{C}$  or more when a substrate is heated to a predetermined temperature so as to generate a MOCVD reaction between a Group III raw material gas and a Group V raw material gas. A  $\text{Al}_p\text{Ga}_q\text{In}_r\text{N}$  ( $p+q+r=1$ ) compound generated from the raw material gases is deposited on the coated  $\text{Al}_a\text{Ga}_b\text{In}_c\text{N}$  ( $a+b+c=1$ ,  $a>0$ ) film, and thus, contaminant particles of the  $\text{Al}_p\text{Ga}_q\text{In}_r\text{N}$  compound are substantially decreased. As a result, the epitaxially grown  $\text{Al}_x\text{Ga}_y\text{In}_z\text{N}$  ( $x+y+z=1$ ) film is not affected by the contaminant particles, and can have a desired crystalline quality.

Substitute abstract